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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,588	02/27/2002	Keizo Akutagawa	Q68338	3867

7590 12/12/2005  
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2100 Pennsylvania Avenue NW  
Washington, DC 20037

EXAMINER

CULBRETH, ERIC D

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/069,588	<b>Applicant(s)</b> AKUTAGAWA ET AL.	
	<b>Examiner</b> Eric Culbreth	<b>Art Unit</b> 3616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7 and 11-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 11-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152. *W.*

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3-7, and 11-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- a. The specification fails to provide an adequate description of the manner in which vibration is applied in the "width direction" and "load support direction" of the tire. Specifically, the embodiment of Figure 7 is described as having an actuator for applying vibration to the tire. However, the construction of the actuator is not described, nor is its interconnection with the tire.

- b. Claim 1 now recites vibration to reduce the coefficient of friction in one of a longitudinal direction and a width direction. This was not disclosed in the original specification (this is new matter).

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3-7 and 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In claim 1, lines 13-14, the recitation of “the first and second vibrations are micro-vibrations having a higher frequency than a response frequency of change in a behavior of the vehicle” is indefinite because it is unclear what constitutes the “response frequency”. Though this term is mentioned in the specification, it has not been defined. Since the “response frequency” is undefined, one cannot know what frequency would be “higher” than the response frequency. Therefore, it is impossible to determine the frequency level defined by the claim.

b. Claims 16-18 are indefinite because they contradict claim 1 from which they indirectly depend. Claim 1 states that vibration is applied in one of a longitudinal direction and a width direction. However, claims 16-18 refer to vibration applied “in the load support direction”. Note that claim 3 first introduces vibration applied in the load support direction. Although claim 16 refers to vibration in a load support direction, there is not an embodiment disclosed that has vibration in the load support direction as well as in the longitudinal and width direction.

***Claim Rejections - 35 USC § 102***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 1, 3 and 15 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Baun (DE 3610519, of record).

Baun discloses a control system for a vehicle that works by the method of using an actuator to apply a medium to high frequency vibration to the tire (abstract and Figures 3-4). Because the actuator is angled with respect to the vertical (Figure 3), the vibration has a horizontal component that is applied in the width direction of the tire. Braun's high frequency is considered to be "higher" than a given response frequency of the vehicle, as is broadly claimed. As indefinitely and functionally recited, when the wheel is vibrated at an angle at high frequency, the coefficient of friction is reduced in the width direction of the tire between the tire and road inasmuch as applicant's disclosed invention. Regarding claim 3, as the tire of Figure 3 vibrates at an angle, it also vibrates in the load direction (vertically) as broadly and indefinitely disclosed. Regarding claim 15, in reducing coefficient of friction, rolling resistance of the tire due to friction is also "minimized" inasmuch as applicant's disclosed invention as indefinitely recited.

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 4-6 and 16-18 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Baun.

Baun discloses the use of a medium to high frequency vibration, but fails to specify the amplitude of vibration amount (claims 4-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Baun to include the frequency ranges in claims 4-6 in order to maximize friction force between the tire and road surface. Further, the selection of optimum values within prior art general conditions is generally recognized as being within the level of ordinary skill in the art.

### ***Response to Arguments***

9. Applicant's arguments filed 8/15/05 regarding the response frequency have been fully considered but they are not persuasive.

Although the remarks give applicant's intended definition of response frequency, this definition is not disclosed in the specification and hence leaves the written description inadequate.

The pages cited from the reference book to John C. Dixon do not mention the phrase "response frequency" (they mention a resonance frequency, but there is no support in the specification this is what is meant by "response frequency" in the disclosure).

Since there is nothing in the disclosure stipulating that the response frequency is the vehicle's natural frequency of vibration, contrary to applicant's remarks, the skilled artisan would not understand the recited relationship in claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Culbreth whose telephone number is 571/272-6668. The examiner can normally be reached on Monday-Thursday, 9:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on 571/272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric Culbreth  
Primary Examiner  
Art Unit 3616

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